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AUTHOR Menolascino, Frank J.
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ABSTRACT

The relationship between schizophrenia and mental retardation is examined. Historical associations between symptoms of the two disorders are reviewed, and a 3-year study of the incidence (14%) of mental illness in 798 retarded individuals in a community based program is described. Information on the etiological, developmental, and phenomenological factors involved in classifying psychotic reactions in the mentally retarded is summarized. Treatment with thiothixene (Navane) and thioridazine (Mellaril) on 61 retarded and non-retarded schizophrenics in an inpatient psychiatric hospital is reported to have produced significant improvement in social adjustment, attentiveness, approachability, and behavior. The thiothixene treated group required less time to show therapeutic improvement. The author asserts that schizophrenia in retarded persons is a distinct, treatable condition, and that there is increased interest in the psychiatric aspects of retardation. (CL)

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Schizophrenia in the Mentally Retarded

Frank J. Menolascino, M.D.
Professor of Psychiatry and Pediatrics

University of Nebraska
Medical Center

602 South 45th Street
Omaha, Nebraska 68106
United States

The historical relationship between the symptoms of mental retardation and mental illness will initially be reviewed. The inter-relationships between the symptoms will then be illustrated by presenting one of our recent studies in a community-based sample of retarded citizens. Specific focus on the clinical diagnosis of schizophrenia in the retarded, and its differential response to treatment modalities, are reviewed through the author's recent study on the efficacy of psychopharmacological agents. Lastly, the current and future challenges which this "dual diagnosis" presents will be underscored.

Introduction

Historically, the relationship between schizophrenia and mental retardation has been described since the very beginning of psychiatry. Indeed, the descriptive clinical picture of Victor, the "Wild Boy of Aveyron" who was described by the French psychiatrist Jean-Marc Itard[1] in the mid-nineteenth century, would today be considered that of an adult psychotic. Despite this clinical picture of both psychosis and severe mental retardation, Itard was able to effect very beneficial developmental and behavioral results with the "Wild Boy" and

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thus initated five decades of hope for the retarded. In 1896, Dr. Emil Kraeplin,[2] the German descriptive psychiatrist, delineated the relationship of psychosis and mental retardation as one wherein dementia praecox (i.e., schizophrenia) was typically engrafted upon previously existing indices of mental retardation. In 1911, the Swiss psychiatrist, Dr. Eugen Bleuler[3] proposed the term "Propf-schizophrenia" to describe this same relationship. Despite these early excellent descriptions of schizophrenia in the mentally retarded, it has not been widely discussed in the psychiatric literature until the last two decades. The major reason for this period of dormant interest lies in historical changes which occurred in the field of mental retardation.

Many of the beginnings of modern psychiatry--especially child psychiatry--were in the early asylums for the mentally ill and mentally retarded. Yet by the early Twentieth Century, the mentally ill began to be served in mental hospitals (with the focus on active treatment), while the retarded were increasingly placed in custodial care (for the "helpless and hopeless"). Indeed, by the end of the second decade of this centruy, the following three trends had served to alienate the retarded from the psychiatric profession: 1) The wide utilization of the Binet test for the assessment of general intelligence ushered in an exclusive overfocus on the "I.Q. score" and the psychiatric case study was viewed as "unnecessary"; 2) The popularity of specious case histories of families who were deemed

all to be retarded (i.e., the Kallikak family by Goddard in 1912)[14] underscored the belief that retardation was always due to fixed genetic causes (e.g., "Some uncle has blighted the family tree-"); these individuals were viewed as untreatable, to be permanently sheltered away from the "normal genetic pool"; and 3) The rapid incorporation of Freudian psychoanalysis served to attract American psychiatry from the "mundane" needs of the retarded. These three factors, working in concert, produced what has been termed the Tragic Interlude in the field of mental retardation: from 1920 until 1960 the field was dominated by custodialism; the psychiatrist-superintendent literally became a jailkeeper, and the earlier outstanding psychiatric treatment results of Itard with the Wild Boy of Aveyron were forgotten.[3]

In the United States, in 1950, parents of the mentally retarded joined together to form a national advocacy group to advocate for modern services for their sons and daughters. They supported research and treatment programs which included a new definition of the term mental retardation (i.e., the AAMD definition[15]), the initiation of early special education programs (ie., the parent-operated Opportunity Centers), and -- joining with mental health and other professionals -- the seeking of local-state-federal support of the then evolving modern treatment and management programs.[4]

Psychiatric Aspects of Mental Retardation

Prior to the Sixties the frequently noted behavioral and personality aspects of retarded citizens were commonly attributed to their basic developmental delays; the behavioral signs or symptoms noted were viewed as expressions of central nervous system abnormalities. However, the Kennedy legislation of 1963 and its resultant University Affiliate Programs in mental retardation initiated a national network of multi-disciplinary teams to study more closely the overall cognitive-behavioral functioning of retarded citizens. Their goal was also to take a fresh look at mental retardation and at the ways in whcih retarded patients function in institutions, families, and workplaces. It soon became apparent, through increasing contributions to the psychiatric literature, that there were a large number of mentally retarded citizens who had concurrent mental illness--which has been termed the "dual diagnosis" in the field of mental retardation.[5] For example, studies have noted consistently that 25-30% of the mentally retarded patients have co-existing mental illness.[5,6,7] Apart from their intrinsic medical significance, these findings have gained increasing social importance as large numbers of retarded persons have been deinstitutionalized and as public advocacy for the retarded has become stronger and more effective. Because of the desinstitutionalization movement, we now have many retarded individuals living in the community who once were, or would have been, locked away. These findings are borne out today

as the deinstitutionalization of the retarded brings more of these individuals to the attention of psychiatrists in the community. In addition, strong parental advocacy voices demand mental health services for their retarded sons and daughters.

The Nature of Mental Illness in the Retarded

The nature and frequency of mental illness in the retarded has been illuminated in several large clinical studies, including one we recently completed involving patients served by a community-based program for the retarded in Nebraska. During a three year period, we found that 114 (14.3%) of the 798 retarded individuals in this program had identifiable evidence of mental illness.[8] Table 1, which employs the DSM III nomenclature system, shows the type of frequency of mental disorder we encountered by patient age in this study.

(Table I Here)

Although one could rightly argue that all mentally retarded persons have an organic brain syndrome, especially those in the moderate and severe groups, we used the "organic brain syndrome" (OBS) designation to be consistent with the DSM III nomenclature. As noted in Table I, schizophrenia is a common mental illness in the retarded, and we noted in it all age groups but the youngest.

Table 2 shows the distribution of mental illness in the 114 patients according to their level of retardation.

(Table 2 Here)

Table 1

TYPES OF MENTAL ILLNESS IN A COMMUNITY-BASED SAMPLE OF 114 MENTALLY RETARDED INDIVIDUALS

By Age

Diagnosis	Chronological Age (Years)					
	6-10	11-20	21-30	31-40	41-50	51+
Schizophrenia (N=24)		7	14	2	1	1
Personality Disorder (N=31)		5	14	7	4	1
Generalized Anxiety Disorder (N=1)			1			
Adjustment Disorders (N=24)	5	11	4	3	1	
Organic Brain Syndrome (N=34) With Transient Behavioral Reaction	2	15	3			
With Transient Psychotic Reaction		9	1	3		

Table 2

TYPES OF MENTAL ILLNESS IN A COMMUNITY-BASED SAMPLE OF 114 MENTALLY RETARDED INDIVIDUALS

By Level of Retardation

Diagnosis	Mild N=50	Moderate N=40	Severe N=24
Schizophrenia	13	7	4
Personality Disorders	22	7	2
Generalized Anxiety Disorder	1	0	0
Adjustment Disorders	9	14	1
Organic Brain Syndromes with Transient Behavioral Reaction	2	8	11
With Transient Psychotic Reaction	3	4	6

Here again, schizophrenia was noted at all levels of retardation. This diagnostic point has prompted much debate in the literature, and the recurring clinical question is: How can one make the diagnosis of schizophrenia in very low functioning and essentially non-verbal individuals?

Although Sequin,[9] in 1866, was the first to describe clearly the association of psychosis with signs and symptoms of mental retardation, its diagnostic clarity did not occur until the last two decades.[6,8,10,11,12,16] Currently, the relationship is viewed as a literal engrafting of a schizophrenic illness upon pre-existing indices of mental retardation (i.e., as the primary disorder); it is readily classified via a DSM III nomenclature system[13].

Schizophrenia is observed at all levels of mental retardation. As Reid[12] noted professional concern has been expressed as to whether the diagnosis of schizophrenia can be accomplished in a severely retarded individual.

This professional concern must closely focus on the etiological, developmental and phenomenological dimensions of the majro mental illnesses in the retarded. We have summarized our clinical experiences on this topic in Figure I.

Figure I

FIGURE 1

CLASSIFICATION OF PSYCHOTIC REACTIONS IN THE MENTALLY RETARDED :

ETIOLOGICAL, DEVELOPMENTAL, AND PHENOMENOMOLOGICAL FACTORS

I. Etiological and Developmental Dimension

Developmental Arrest: Primary or Congenital	Acquired: Non-psychotic→psychotic
The individual never had a functional ego. There is no distinct concept of the self; instead, there is an amorphic and formless personality (essentially a minimal personality structure). The reasons why these patients never developed a functionally complex ego early in life: may be due to a primary integrative problem (e.g., cerebral dysfunction, mental retardation, specific mid-brain deficits; or possible secondary integrative problems (e.g., secondary to a negative intake process such as psychotoxic mothering, deprivation syndromes, combined sensory-general environmental input difficulties, etc.).	(1) Regressive dynamic; primary (childhood schizophrenia). (2) Secondary (Propf-schizophrenia: Organic congenital cerebral insult/dysfunction (e.g., infantile spasms syndome and its residuals; traumatic or post-infection etiologies, etc.). (3) Toxic psychoses (e.g., phenylketonuria). A toxic metabolic disorder can literally disintegrate the personality' relationship to reality.

II. Phenomenological Aspects

A	B	C
Organic Brain Syndrome with Behavioral Reaction	Organic Brain Syndrome with Psychotic Reaction	Schizophrenia
1. Distinct(and early indices of retardation("untutored") 2. Benign autism: limited ability to respond to interpersonal stimulation. 3. No island of intact personality functioning at chronological age level. 4. Minimal stress anxiety-initially turned inward toward self(abuse), then negativism and diffuse motoric overactivity.	1. History of MR/major developmental delays 2. Isolated and lonely; long standing personality posture of rigidity. 3. Some scattered islands of intact personality functioning (not disorganized). 4. With minimal stress: Repetitive behaviors; if stress mounts; out of contact (psychotic) behaviors, poor language development.	1. Long history since early in life of withdrawn and regressive behaviors (less than 6 months): primary mental retardation disinterested in tutoring. 2. Autism (motoric and interpersonal distancing:not of recent onset) 3. Disorganized personality-chronically so! 4. Ritualistic behaviors: initially utilized to avoid interacting with other as demands for appropriate behavior mount: he becomes more bizarre, affectively unavailable, and secondary signs of schizophrenia become more prominent.

In the study to be described here, we noted four individuals who displayed both severe mental retardation and schizophrenia. The presence of bizarre behavior, persistent withdrawal, echolalia, and blunted affect in adults who had clearly regressed from an earlier higher level of functioning was striking. These four individuals illustrate the superimposition of schizoprehnia upon etiologically clear instances of mental retardation. One had Down's syndrome, one had fetal rubella, and two had major cranial malformations causing mental retardation. According to their personal-clinical histories, all four of these individuals developed schizophrenia between the ages of 18 and 22 years.

Similarly, it has been our clinical experience that the markedly primitive behaviors noted in severely retarded adults (e.g., severe retardation with associated poor language development) can be readily separated from schizophrenia superimposed upon primary mental retardation[8]. For example, we noted instances of paranoid schizophrenia in two non-verbal adult patients who drew on paper their "attackers", complete with non-verbal gestures. One such individual would label his separate fingers as the "source" of his common delusions which he would portray symbolically in crude drawings (see Figure II).

Figure II

FIGURE II

Drawings of two

Severely Retarded and Minimally-

Verbal Schizophrenic patients

SUSAN

Susan's drawings depict on the first page her delusion that her married sister and brother-in-law were partners who "loved" to torture her (the figure in the lower right hand corner). She said that the picture showed her murder, after which people came to her home (shown with the house number 2315) by car to see the "bad things" done by her sister's actions. Susan is in the casket with a cross above to take her to heaven and the crosses were drawn below to protect her from Hell.

ROBERT

Robert said the "eyes" drawn on the middle two fingers were his parents trying to kill him. He became agitated as he pointed to the knife on his little finger, which he "knew" his parents would use "to take my blood" shown on the index finger. His parents sat, bewildered by his explanation, and cried. The primitive ideas of reference and instances of thought insertions were very clear in this severely retarded-schizoprhrenic young man.

Paranoid and catatonic features were the most frequently noted hallmarks of the acute chronic schizophrenic patients whom we have evaluated and treated. In individuals who display the "dual diagnosis" of mental retardation and schizophrenia, the altered affective responses, bizarre rituals, and persistent use of interpersonal distancing devices are clearly schizophrenic behaviors.

The majority of these dual diagnosis individuals whom we have examined were in need of inpatient psychiatric care. Our treatment program consists of a balanced appraoch (including psychoactive medications) by a multi-disciplinary team. We have continued to explore the psychoactive agents which may have potential clinical advantages in providing earlier or increased treatment efficacy. In the past, the author has been involved in psychoactive drug research studies on thioridazine (Mellaril) and haloperidol (Haldol) for this dual diagnosis group.[14] Yet these two of my "standby favorites" still do not produce the degree of treatment-outcome results I would like to obtain; thus my ongoing search for more effective major psychoactive agents, Navane (thiothixene) began to impress us in our daily clinical work; we decided to do a formal research study to see whether our impressions of its superior clinical efficacy were valid.

Clinical Study: Thiothixene vs. Thioridazine in Retarded and Non-Retarded Schizophrenic Patients

Our recent study was designed to provide a clearer picture

of the efficacy of specific psychoactive drugs with the mentally retarded-schizophrenic patients. We decided to conduct a rater-blind comparison of Navane (thiothixene) and Mellaril (thioridazine) in a sample of retarded and non-retarded schizophrenic individuals. Specifically, the present study was designed: 1) to see if there was a differential response to thiothixene and thioridazine in retarded schizophrenics as opposed to non-retarded schziophrenics; 2) to determine which drug might offer enhanced short-term treatment response; 3) to determine whether the type and/or number of side effects of these two psychoactive agents was the same in the mentally retarded schizophrenic as in non-retarded schizophrenic patients; and 4) to provide a clinical trial of the overall efficacy of these two psychoactive agents in these populations.

To reach these goals, the rater blind study compared the effects of these two medications on randomly assigned retarded and non-retarded schizophrenics in an inpatient psychiatric hospital setting. Medication was given to patients by psychiatrists who knew which medication the patient was on, in order to maximize the similarity of this trial to real clinical situations. However, the raters of the medication effects did not know the identity of the two drug groups, and the patients were unaware of the nature of their medication. In brief, the research methodology emplyed was the following:

Sixty-one male and female inpatients with a diagnosis of schizophrenia (according to DSM III criteria) of any subtype participated. Thirty-three received thiothixene and 28 received

thioridazine.

(Table 3 Here)

The study participants, classified on the basis of I.Q. (using the Weschler Adult Intelligence Scale) and social adaptive assessment, were divided in two groups. Those with the WAIS score below 70 were classified as retarded, those who scored within the normal range were so designated. The subjects were then randomly assigned to the two study medications as noted in Table 3. The distribution of schizoprehnia characteristics was similar in both groups.

A one-week washout period preceded administration of the study medications except in patients who had received psychoactive agents in the previous month. The study medications were given on a flexible dosage schedule based on the clinical judgment of each subject's psychiatrist in order to simulate actual clinical practices in psychiatry. Dosage changes were made gradually, and treatment continued for a maximum of three months.

Patient evaluations were made at weeks 1,2,3,4,8, and 12 by observers who were blind to the medication assignment and dosage(s). Each subject was evaluated by the same observer throughout the study. At the conclusion of treatment, a five point Therapeutic Effect Index was completed for each subject in the study.

Study Findings

Our study demonstrated that treatment with either thiothixene or thioridazine produces significant improvement of schizophrenia

Table 3:

PATIENT CHARACTERISTICS

I.Q. Classification	Study Medication					
	Thiothixene			Thioridazine		
	Normal Intelligence	Mentally Retarded	Combined Total	Normal Intelligence	Mentally Retarded	Combined Total
Number of Patients	16	17	33	14	14	28
Sex:						
Male	9	8	17	7	7	14
Female	7	9	16	7	7	14
Age: (Years; mean ±S.D.)	30.1 ±9.1	38.0 ±12.8	34.5 ±12.8	30.9 ±10.7	38.0 ±12.8	38.4 ±11.9
Duration of Illness (Years; mean ±S.D.)	2.2 ±0.6	2.6 ±0.5	2.4 ±0.6	2.5 ±0.7	2.4 ±0.5	2.4 ±0.6

in both groups as reflected in the standard psychiatric rating scale -- NOSIE, HAM-D, DBI and KAS.

Clinically, the patients in both groups showed improved social adjustment, improved attentiveness, less inappropriate behavior, and increased approachability. Interestingly, to achieve optimum therapeutic effects, non-retarded patients required higher doses of both study medications than did their retarded counterparts. (See Figure 3.)

Figure 3

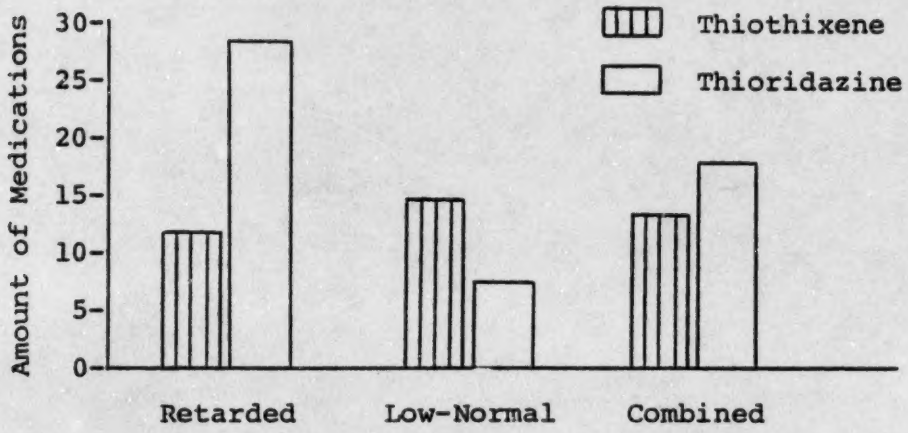
Our study's most striking finding was the difference in time required to achieve maximum therapeutic effect between the two drugs under investigation. We found a significantly ($p < .05$) more rapid onset of therapeutic effect in retarded-schizophrenic patients treated with thiothixene than in the retarded-schizophrenics treated with thioridazine. The mean treatment time needed to produce the optimal therapeutic effect in thiothixene-treated retarded-schizophrenic individuals was 12 days, while 28.8 days were required to produce similar effects in the retarded-schizophrenic thioridazine group.

Across the board, both drugs produced the same number of predictable side effects. However, in the thiothixene group, extrapyramidal symptoms were common and usually responsive to symptomatic therapy while drowsiness was observed much more frequently in the thioridazine group.

Figure 3:

Dosages required for

Optimal Therapeutic Response



Discussion

I have reviewed some of the special diagnostic and treatment challenges presented by retarded individuals who are also schizophrenic. It is underscored that schizophrenia in retarded individuals is a distinct, treatable entity, just as it is in nonretarded individuals. This is not an academic point, since, in the future, we can expect increasing numbers of retarded persons to be living among us in the mainstreams of our communities rather than in the large public institutions to which they were once consigned as "helpless and hopeless." More than anything else, I think this increasing trend is going to stimulate an enhanced interest in studying the psychiatric aspects of mental retardation.

There have been relatively few well controlled studies of the response of mentally retarded schizophrenic patients to the commonly used major psychoactive medications.[17,18,19,20,21] The present study underscores that these medications (specifically thioridazine and thiothixene) can be as effective in the treatment of the retarded schizophrenic as they are in the nonretarded schizophrenic. However, some observed differences are of importance to the clinician. First, the dosage levels of both medications needed for optimal treatment were noted to be lower in the retarded patients than in the patients with normal intelligence -- despite the clinical assessment of equal severity of symptoms. This may be caused by a tendency for the retarded patients to appear more psychotic or otherwise impaired than is actually the case. In addition, the retarded patients

may react differently to the medication.

A second result is the finding that thiothixene acts to alleviate symptoms in the retarded schizophrenic patients faster than does thioridazine. This result statistically was in accord with the clinical impression of these patients' physicians as well; they clearly felt that thiothixene brought the psychotic symptoms under control more rapidly--even though the eventual degree of recovery was similar with both medications.

It wa also noted that extrapyramidal side effects were most frequently seen with thiothixene, while drowsiness and sedation can further adversely effect the learning potentials of the mentally retarded, its relative absence as a side effect of thiothixene in this sample is a distinct advantage for its clinical utilization.

These encouraging results concerning the efficacy of these psychoactive medications suggest the need for further study in this area, especially on the questions of optimal dosage levels for retarded patients and whether some drugs may offer enhanced short term response without sacrificing long term efficacy.

Finally, future research efforts need to be directed at refining diagnostic criteria to better predict which mentally retarded patients with allied schophrenia are most likely to benefit from balanced treatment approaches which include the judicious utilization of the major psychoactive agents.

Clearly, this thiothixene-thioridazine study has impressed us and has greatly enhanced our clinical utilization of thiothixene

as part of a balanced treatment approach to mentally retarded-schizophrenic patients. The earlier onset of response is both more humane for the patients and more cost-beneficial--a fact which has been greatly appreciated by our Utilization Review Committee (!). The very low incidence of drowsiness--sedation side effects noted with the use of thiothixene is beneficial to the retarded individual who has, by definition, clearly documented difficulties in cognition--avoiding further impairment in his/her thinking and reasoning abilities which can greatly maximize social adaptive adjustments.

In summary, it is my prediction that we will see increasing clinical attention to the psychiatric aspects of mental retardation--both in the general mentally retarded population and those with the dual diagnosis of both mental retardation and schizophrenia. Concurrent with this widening attention will be an increased focus on the utilization of specific psychoactive agents, such as thiothixene, which hold great promise for promptly quelling the major psychiatric disorders which so often complicate the retarded citizen's adjustment to the interpersonal world of everyday life. It is my hope that the foregoing study will add to our professional understanding of one of these major mental ilnesses--schizophrenia--which so often complicates the lives of retarded persons who are trying to "make it" in our world.

REFERENCES

1. Itard, J. The wild boy of Aveyron (Translated by G.& M. Humphrey). New York: Appleton-Century-Crofts, 1962.

2. May, J., and May, J., and Menolascino, F. Mental Illness in the Mentally Retarded. In: F. Menolascino and J. Stark (Eds.) Mental Illness and Mental Retardation. New York: Plenum Press, 1983.

3. Menolascino, F.: The reserach challenge of delineating psychiatric syndromes in mental retardation. In Psychiatric Approaches to Mental Retardation. New York: Basic Books, 1964.

4. Menolascino, F.: Challenges in mental retardation: Progressive Ideology and Services. New York: Human Sciences Press, 1978.

5. Menolascino, F. & McCann, B.: Bridging the Gap: Mental Health Needs of the Mentally Retarded. Baltimore: University Park Press, 1983.

6. Menolascino, F. Psychiatric Aspects of Mental Retardation. New York: Basic Books, Inc. 1970.

7. Szymanski, L. & Tanguay, P.: Emotional Disorders of Mentally Retarded Persons. Baltimore: University Park Press, 1980.

8. Eaton, L. & Menolascino, F.: Psychiatric disorders in the mentally retarded: Types, problems and challenges. American Journal of Psychiatry, 139:10, October, 1982.

9. Sequin, E.: The Moral Treatment, Hygiene and Education of Idiots and Other Backward Children. New York: Columbia University Press, 1846.

10. Penrose, L.S.: The Biology of Mental Defect. New York: Grune and Stratton, Inc., 1962.

11. Beier, D.C.: Behavioral disturbances in the mentally retarded. In Stevens, H. and Heber, R. (eds.): Mental Retardation: A Review of Research. Chicago: University of Chicago Press, 1964.

12. Reid, A.H.: Psychoses in adult mental defectives: II. Schizophrenia and paranoid psychoses. British Journal of Psychiatry, 120: 213-218, 1972.

13. American Psychiatric Association. Committee on Nomenclature and Statistics. Robert L. Spitzer, M.D. Chairperson. Diagnostic and Statistical Manual of Mental Disorders, Third Edition, Washington, D.C., 1980.

14. Goddard, H. The Kallikak Family. New York: MacMillan, 1912.

15. Grossman, H.J., ed. Manual on terminology and classification in mental retardation. Washington: A.A.M.D., 1973, p. 11.

16. Heaton-Ward, A: Psychosis in mental handicap. British Journal of Psychiatry, 130: 525-533, 1977.

17. Lippman, R.S.: The use of psychopharmacological agents in residential facilities for the retarded. In Menolascino, F. (ed.): Psychiatric Approaches to Mental Retardation. New York: Basic Books, 1970.

18. Lippman, R.S., DiMascio, A., Ratid, N. & Kirson, T.: Psychotropic drugs and mentally retarded children. In Lipton, M.A., DiMascio, A., Killiam, K.F. (eds.): Psychopharmacology: A Generation of Progress. New York: Raven Press, 1978.

19. Freeman, R.: The Use of Drugs to Modify Behavior in Retarded Persons. Arlington, Texas: National Association for Retarded Citizens, 1978.

20. Appleton, W.S. Fourth psychoactive drug usage guide. Journal of Clinical Psychology, 43:12-27, 1982.

21. Breuning, S. and Poling, A. Drugs and Mental Retardation Springfield, IL.: C.C. Thomas, 1982.

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